Mine file

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Ground-water contamination not hazardous, Kennecott says

By Joseph Bauman
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Mining in Bingham Canyon has contaminated shallow ground water on and off Kennecott property, but no health hazards have shown up, Kennecott officials reported Wednesday.

Kennecott experts made the report in a joint meeting of three state regulatory committees: the Water Pollution Control Committee, Safe Drinking Committee, and Solid and Hazardous Wastes Committee. The auditorium in the Department of Natural Resoruces headquarters, 1636 W. North Temple, was packed with state officials and reporters.

Robert Malone, Kennecott's director of environmental affairs, said, "The indications are the contamination is localized around these sources such as the Bingham Reservoir, the evaporation ponds and the leaching system."

The Bingham Reservoir is a structure at the mouth of Bingham Canyon, near Copperton, that collects Kennecott's leaching solution after it has gone through a treatment process to recover copper. The old evaporation ponds are near South Jordan, and were used until the Bingham Reservoir was built in 1965. The leaching system is a practice of running water onto piles of low-grade ore to the east and west of the open pit, to remove copper.

Malone said the fact that limited contamination of ground water has occurred has been common knowledge for the last couple of years. A $2 million, five-year Kennecott-funded study that started in June 1983 is attempting to determine the seriousness and extent of the contamination.

The study's preliminary results show that the contamination is highly localized and "it doesn't seem to be migrating" to any dangerous degree, he said. However, this early in the study, "no conclusions have been reached yet."

Malone told the committees that not only has no violation of drinking water standards been observed, but no adverse trend has been found in drinking-water wells.

Contamination outside Kennecott property has been limited to sulfates and total dissolved solids (salt), found only in the upper water table. The more important deep aquifer, used for drinking water, has not been affected, according to all test results available so far.

Kennecott is spending more than $10 million to build concrete-lined and clay-lined structures and evaporation ponds to retain expected heavy runoff water from the Dry Fork drainage area, about five square miles north of the Bingham open pit.

In 1983, about 5,000 acre-feet of water — twice the previous record — came down through Dry Fork in the heavy spring runoff.

The new ditches and other structures are supposed to impound runoff water so that it can't sweep through and pick up contamination from the open pit or a larger area disturbed by mining.

The project began this year and should be finished early next summer.

Heavy metals have contaminated particular areas of shallow ground water on Kennecott's property. This kind of contamination has not migrated off the company's property, as far as the prelminary results show. Malone thinks the metals may get out of the water system rapidly, so they don't travel with the slow-moving aquifer.

No contamination has shown up in culinary or agricultural wells, he said.

Off site, contamination is limited to localized areas, mostly with sulfates and total dissolved solids (salts) in the upper ground water level.

"What we've seen so far is not alarming," he said.

Terry Vandell, chief of engineering for Kennecott's water resources division, said the upper shallow aquifer has been polluted "in localized areas as a result of Kennecott and pre-Kennecott mining operations." But no contamination has shown up in the deep aquifer.

A plume of contamination exists east of old leach dumps on the Kennecott property. The rate of movement and the plume's exact size have yet to be determined by the study.

"There certainly is localized contamination around the old evaporation ponds," she said.

Ms. Vandell said the ground water study covers 200 square miles. Four wells have been drilled this year to monitor the quality of deep ground water. In addition, 64 private wells, 48 wells on Kennecott property and 29 surface water sampling sites are being checked.

The study will also check impacts from "mining, ranching, farming and other activities.

A new program to drill test wells will start in the spring of 1985. At least 13 sites, and possibly 23 wells altogether, will be drilled to the shallow, intermediate and deep zones.

Proposed new monitoring well locations will be parallel to the leach dumps, off-site in an east-west line north of and paralleling the Bingham Creek channel, and around the evaporation ponds.

Kennecott's Steve Taylor summarized the potential sources of water contamination in the area. He said lead mining started in the canyon in 1865, well before open-pit copper mining began around the turn of the century. In the early days, discharges were into the Jordan River.

In the 1930s, evaporation ponds were built in the Jordan, but "there was substantial leakage" from them, Taylor said.

In 1965, the Bingham Canyon Reservoir was constructed, creating a closed system. However, in the last two years, with the record precipitation, the system is no longer closed.

"There're numerous old tailings piles . . . that originated in the 1870s on up until 1910 from underground mines," he said. Rain and runoff water crossing these piles could contaminate surface or underground water.

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